FIG. 1A

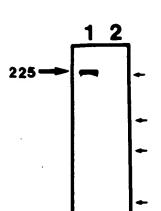


FIG. 1B

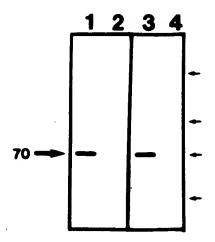


FIG. 2A

FIG. 2B

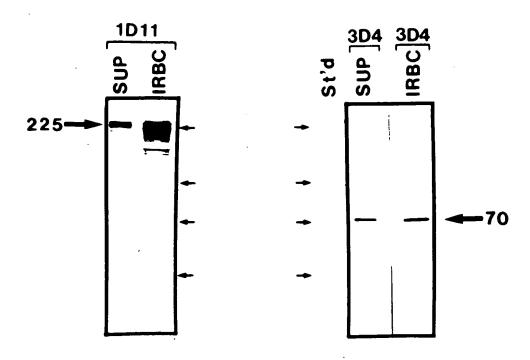
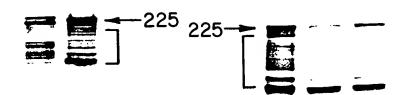




FIG. 4A
1 2 3 4 5 6 7

FIG. 4B 1 2 3 4 5



1 2 3 4 5 6 7 8 9 10 11

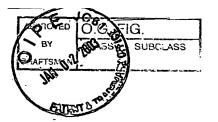
225

FIG. 4C

1 2 3 4 5 6 7

225-

FIG. 4D



### **RECEIVED**

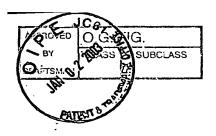
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## FIG. 5A

G

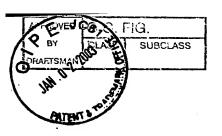
| ΑA   |  |  |  |  |   |  |  |  |   |   |  |  |   |   |  |   |  |  | ATCT  | 61   |
|--|--|--|--|--|---|--|--|--|---|---|--|--|---|---|--|---|--|--|---|--|
| N  |  |  | K  |  |   |  |  |  |   |   |  |  |   |   |  |   |  |  |   |  |
|  |  |  | TCT'   |  |   |  |  |  |   | CAGI  | 'AAG   | ATA  | AAA   | ATA   | ATC  | CAT   | TAA!   | AAAC   | TGC   | 120  |
|  |  |  | ' L  |  |   |  |  |  |   | ľ   |  |  |   |   |  |   |  |  |   |  |
| TA   | TAT  | 'ATA   | CAT  | ATA'   | TAT   | TCA  | TAZ  | AGTO   | GC?   | TTT   | GTG  | AAT  | TGC   | GAT   | CAI  | TT  | raa/   | TTA  | CGTA  | 180  |
| AA   | AAC  | 'AA'   | 'ATT   | GAA  | AAA   | raa  | TTT  | TTT  | TT  | ГТТТ  | TTT  | ттт  | TTT   | GTT   | CTA  | CAC   | SAAC   | GAT  | 'TTAG   | 240  |
|  |  |  |  |  |   |  |  |  |   |   |  |  |   |   |  |   | N  | D  | L   |  |
| AA   | TTG  | GAA  | AAT  | GCT'   | TCT   | GAT  | GAI  | GTI  | GTA   | \GA(  | GTG  | GAG  | GAT   | CCT   | TCA  | AA  | CGAC   | CGGT   | 'TTAG   | 300  |
| E  | L  | E  | N  | Α  | S   | D  | D  | V  | V   | E   | V  | E  | D   | Р   | S  | N   | D  | G  | L   |  |
| AA   | ATTA   | GAA  | GAG  | GAA  | AAT   | TTT  | GAT  | GAG  | AA  | TCA   | GGT  | GAT  | GAT   | GAA   | ACT  | CTT   | TTT  | GAT  | GCTA  | 360  |
| E  | L  | E  | E  | E  | N   | F  | D  | E  | N   | S   | G  | D  | D   | E   | Т  | L   | L  | D  | Α   |  |
| CC   | CCC  | 'GAA   | GAT  | GAC'   | TTT   | GCC  | TTA  | ACA  | GA7   | TTT   | CCA  | ATT  | GAA   | GAC   | GAI  | 'GAC  | GAA  | GTC  | AACG  | 420  |
|  | P  |  | D  |  |   |  |  |  |   |   |  |  |   |   |  |   |  | V  | N   |  |
| ΑΑ   | ACG  |  |  |  |   |  |  |  |   |   |  | -  |   |   |  |   |  | ACA  | GAAG  | 480  |
| E  |  |  |  |  |   |  |  |  |   |   | v  |  |   |   |  |   |  | T  | E   |  |
| _  | _  | _  | _  |  |   |  |  |  |   |   |  |  |   |   |  |   | _  |  | GAAG  | 540  |
| D  |  | S  | T  |  |   |  |  |  |   |   | G  |  |   |   |  |   |  |  |   | 310  |
| אע   | _  | _  | _  | _  | _   |  |  |  |   |   |  |  |   |   |  |   |  |  | GAAA  | 600  |
|  |  |  | G  |  |   |  |  |  |   |   |  |  |   |   |  |   |  |  |   | 000  |
|  |  |  |  |  |   |  |  |  |   |   |  |  |   |   |  |   |  |  | GGTG  | c c o  |
|  |  |  |  |  |   |  |  |  |   |   |  |  |   |   |  |   |  |  |   | 660  |
|  |  |  | L  |  |   |  |  |  |   |   |  |  |   |   |  |   |  |  |   |  |
|  |  |  |  |  |   |  |  |  |   |   |  |  |   |   |  |   |  |  | GCGG  | 720  |
|  |  |  | A  |  |   |  |  |  |   |   |  |  |   |   |  |   |  |  | Α   |  |
| AΑ   | ACT  | GAA  | GAA  | GGA(   | GCA.  | ACT  | 'GGA   | GAT  | GCG   | GAA   | ACT  | GAA  | TAA   | GGA   | GCA  | ACT   | 'GTG   | TAT  | GTAG  | 780  |
| E  | ${f T}$  | E  | $\mathbf{E}$   | G  | Α   | т  | G  | D  | Α   | F.  | Т  | E  | N   | G   | Α  | Т   | V  | Y  | V   |  |
|  |  |  |  |  |   |  |  |  |   |   |  |  |   |   |  |   | -  | _  |   |  |
| AC   | ACA  | GAA  |  |  |   |  |  |  |   |   |  |  |   |   |  |   | -  | _  | AATG  | 840  |
| AC<br>D  |  | GAA<br>E   |  |  | rca(  | GCT  | GAT  | 'GGA   | GCA   | GAA   |  | GTA  | CAT   | GTT   | CCT  | GCT   | -  | _  | AATG<br>N   | 840  |
| D  | $\mathbf{T}$   | E  | GATA<br>D  | AGTT<br>S  | rca<br>S  | GCT<br>A   | GAT<br>D   | 'GGA<br>G  | GCA<br>A  | GAA<br>E  | AAA<br>K   | GTA(<br>V  | CAT(<br>H   | GTT<br>V  | CCT<br>P   | GCT<br>A  | 'CAA<br>Q  | GĀA<br>E   | N   | 900  |
| D<br>TA  | T<br>CAA   | E<br>CCT   | GATA<br>D<br>GCCC  | AGTT<br>S<br>SATA  | rca<br>S<br>AGT   | GCT<br>A<br>AAT  | GAT<br>D<br>GAT  | GGA<br>G<br>GCC  | GCA<br>A<br>CTC   | GAA<br>E<br>TTT   | AAA<br>K<br>GGA  | GTA<br>V<br>AGT  | CAT(<br>H<br>ATT'   | GTT(<br>V<br>TTG(   | CCT<br>P<br>GAT  | GCT<br>A<br>AAA   | 'CAA<br>Q  | GAA<br>E<br>ATA  | N<br>ATTT   |  |
| D<br>TA<br>V   | T<br>.CAA<br>Q   | E<br>CCT<br>P  | GATA<br>D<br>GCCC<br>A   | AGTT<br>S<br>SATA<br>D   | rcac<br>s<br>Agti   | GCT<br>A<br>AAT<br>N   | GAT<br>D<br>GAT<br>D   | 'GGA<br>G<br>'GCC<br>A   | GCA<br>A<br>CTC<br>L  | GAA<br>E<br>TTT<br>F  | AAA<br>K<br>GGA<br>G   | GTA<br>V<br>AGT<br>S   | CAT(<br>H<br>ATT'   | GTT(<br>V<br>TTG(<br>L  | CCT<br>P<br>GAT<br>D   | GCT<br>A<br>AAA<br>K  | 'CAA<br>Q<br>.GAT<br>D   | GAA<br>E<br>ATA<br>I   | N<br>ATTŢ<br>I  | 900  |
| D<br>TA<br>V<br>TT   | T<br>CAA<br>Q<br>GAT   | E<br>CCT<br>P<br>CAT   | GATA<br>D<br>GCCO<br>A<br>ATTA   | AGTT<br>S<br>SATA<br>D<br>AAA(   | rca<br>S<br>AGT<br>S<br>SAT   | GCT<br>A<br>AAT<br>N<br>ITC  | GAT<br>D<br>GAT<br>D<br>GAG  | GGA<br>G<br>GCC<br>A<br>SCCA   | GCA<br>A<br>CTC<br>L<br>CTA   | GAA<br>E<br>TTT<br>F<br>TTC   | AAA<br>K<br>GGA<br>G<br>GAA  | GTA<br>V<br>AGT<br>S<br>CAA  | CAT(<br>H<br>ATT'<br>I<br>ATT(  | GTT(<br>V<br>TTG(<br>L<br>GTG(  | CCT<br>P<br>GAT<br>D<br>GCG  | GCT<br>A<br>AAA<br>K<br>GGT   | CAA<br>Q<br>GAT<br>D<br>'ACT   | GAA<br>E<br>ATA<br>I<br>GCT  | N<br>ATTT<br>I<br>AAAC  | 900  |
| D<br>TA<br>V<br>TT<br>F  | T<br>CAA<br>Q<br>GAT<br>D  | E<br>CCT<br>P<br>CAT<br>H  | GATA D GCCC A ATTA   | AGTT<br>S<br>AATA<br>D<br>AAAC<br>K  | CAC<br>S<br>AGT<br>S<br>SAT<br>D  | GCT<br>A<br>AAT<br>N<br>TTC<br>F   | GAT<br>GAT<br>D<br>GAG<br>E  | GGA<br>GCC<br>A<br>CCA<br>P  | GCA<br>A<br>CTC<br>L<br>CTA   | GAA<br>E<br>TTT<br>F<br>TTC<br>F  | AAA<br>K<br>GGA<br>G<br>GAA<br>E                                   | GTA<br>V<br>AGT<br>S<br>CAA  | CAT(<br>H<br>ATT'<br>I<br>ATT(  | GTT<br>V<br>TTG<br>L<br>GTG<br>V  | CCT<br>P<br>GAT<br>D<br>GCG<br>A   | GCT<br>A<br>AAA<br>K<br>GGT<br>G  | CAA<br>Q<br>GAT<br>D<br>'ACT   | GAA<br>E<br>ATA<br>I<br>GCT<br>A   | N<br>ATTT<br>I<br>AAAC<br>K   | 900<br>960   |
| D<br>TA<br>V<br>TT<br>F<br>AT  | T<br>CAA<br>Q<br>GAT<br>D<br>GTT                                     | E<br>CCT<br>P<br>CAT<br>H<br>ACG   | GATA D GCCC A ATTA I GGAC  | AGTT<br>S<br>SATA<br>D<br>AAAC<br>K<br>CAAC  | CAC<br>S<br>AGT<br>S<br>SAT<br>D<br>SAA   | GCT<br>A<br>AAT<br>N<br>TTC<br>F<br>TTG  | GAT<br>GAT<br>D<br>GAG<br>E<br>CCA   | GGA<br>GCC<br>A<br>CCCA<br>P<br>ATG  | GCA<br>A<br>CTC<br>L<br>CTA<br>L  | GAA<br>E<br>TTTT<br>F<br>TTC<br>F   | AAA<br>K<br>GGA<br>G<br>GAA<br>E<br>GTA                            | GTA<br>V<br>AGT<br>S<br>CAA<br>Q<br>CCA'   | CAT(<br>H<br>ATT'<br>I<br>ATT(<br>I   | GTT( V TTG( L GTG( V CCA(   | CCT<br>P<br>GAT<br>D<br>GCG<br>A<br>GTG  | GCT<br>AAA<br>K<br>GGT<br>GCA   | 'CAA<br>Q<br>GAT<br>D<br>'ACT<br>T<br>GAA  | GAA<br>E<br>ATA<br>I<br>GCT<br>A<br>GAG                                      | N<br>ATTT<br>I<br>AAAC<br>K<br>CCCG   | 900  |
| D<br>TA<br>V<br>TT<br>F<br>AT<br>H   | T<br>CAA<br>Q<br>GAT<br>D<br>GTT                                     | E<br>CCT<br>P<br>CAT<br>H<br>ACG   | GATA D GCCC A ATTA I GGAC G  | AGTT<br>S<br>SATA<br>D<br>AAA(<br>K<br>CAA(<br>Q   | CAC<br>S<br>AGT<br>S<br>SAT<br>D<br>D<br>SAA<br>E   | GCT AAT N TTC F L  | GAT D GAT CAG GAG E CCA P  | GGA<br>GCC<br>A<br>GCCA<br>P<br>ATG<br>M   | GCA<br>A<br>CTC<br>L<br>CTA<br>L<br>AAA   | GAA<br>E<br>TTTT<br>F<br>ATTC<br>F<br>ACCT  | AAA<br>K<br>GGA<br>G<br>GAA<br>E<br>GTA                            | GTAG<br>V<br>AGT<br>S<br>CAA<br>CAA<br>Q<br>CCA'                                       | CAT( H ATT' I ATT( I I I I I I I I I I I I I I I I I I  | GTT( V TTG( L GTG( V CCA( P   | CCT P GAT D GCG A GTG V  | GCT<br>A<br>AAA<br>K<br>GGT<br>G<br>GCA<br>A  | CAA<br>Q<br>GAT<br>D<br>ACT<br>T<br>GAA<br>E   | GAA<br>E<br>ATA<br>I<br>GCT<br>A<br>GAG                                      | N<br>ATTT<br>I<br>AAAC<br>K<br>CCCG<br>P                                      | 900<br>960<br>1020   |
| D<br>V<br>TT<br>F<br>AT<br>H<br>CG   | T<br>CAA<br>Q<br>GAT<br>D<br>GTT<br>V<br>CAA                         | E<br>CCT<br>P<br>CAT<br>H<br>ACG<br>T<br>GTA   | GATA D GCCC A ATTA I GGAC G CCAC   | AGTT<br>S<br>SATA<br>D<br>AAAC<br>K<br>CAAC<br>Q<br>SCGC   | CAC<br>S<br>AGT<br>S<br>SAT<br>D<br>SAA<br>E  | GCT AAT N TTC F TTG L GAA  | GAT D GAT GAG E CCA P  | GGA<br>GCC<br>A<br>CCCA<br>P<br>ATG<br>M   | GCA<br>A<br>CTC<br>L<br>CTA<br>L<br>AAA<br>K  | GAA E TTTT F TTC F CCT P ACT  | AAA<br>K<br>GGA<br>G<br>GAA<br>E<br>GTA<br>V<br>CCA                | GTA( V AGT) S CAA Q CCA' P GAGG  | CAT( H ATT' I ATT( I CTA( GAT(  | GTT( V TTG( L GTG( V CCA( P   | CCT P GAT D GCG A GTG V ITC  | GCT AAA K GGT GCA GCA   | CAA<br>Q<br>GAT<br>D<br>ACT<br>T<br>GAA<br>E   | GAA<br>E<br>ATA<br>I<br>GCT<br>A<br>GAG<br>E                                 | N ATTT I AAAC K CCCG P GTTA   | 900<br>960<br>1020   |
| D<br>V<br>TT<br>F<br>AT<br>H<br>CG<br>A                                    | T<br>CAA<br>Q<br>GAT<br>D<br>GTT.<br>V<br>CAA                        | E<br>CCT<br>P<br>CAT<br>H<br>ACG<br>T<br>GTA   | GATA D GCCC A ATTA I GGAC G CCAC   | AGTT<br>S<br>SATA<br>D<br>AAAO<br>K<br>CAAO<br>Q<br>GCGO<br>A  | CAC<br>S<br>AGTA<br>S<br>SAT<br>D<br>SAA<br>E<br>SAA<br>E                                   | GCT AAT N TTC F TTG L GAA E  | GAT D GAG E CCA P TTA  | GGA<br>GCCA<br>CCCA<br>P<br>ATG<br>M<br>GAT  | GCA<br>CTC<br>L<br>CTA<br>L<br>AAA<br>K<br>GCC  | GAA<br>E<br>TTTT<br>F<br>ATTC<br>F<br>ACT<br>P  | AAA<br>K<br>GGA<br>G<br>GAA<br>E<br>GTA<br>V<br>CCA                | GTA<br>V<br>AGTA<br>S<br>CAAA<br>Q<br>CCA'<br>P<br>GAGG                                | CAT( H ATT' I ATTC I TTAC GATC  | GTT( V TTG( L GTG( V CCA( P GAC' D  | CCT P GAT GCG A GTG V FTC  | GCT AAA K GGT GCA A GCA   | CAA<br>Q<br>GAT<br>D<br>ACT<br>T<br>GAA<br>E<br>TTA  | GAA<br>E<br>ATA<br>I<br>GCT<br>A<br>GAG<br>E<br>GAT                          | N ATTT I AAAC K CCCG P GTTA V   | 900<br>960<br>1020<br>1080   |
| D<br>TA<br>V<br>TT<br>F<br>AT<br>H<br>CG<br>A<br>CA                        | T<br>CAA<br>Q<br>GAT<br>D<br>GTT<br>V<br>CAA<br>Q<br>GAA             | E<br>CCT<br>P<br>CAT<br>H<br>ACG<br>T<br>GTA<br>V  | GATA D GCCC A ATTA I GGAC G CCAC P CCCC  | AGTT S SATA D AAAC K CAAC Q SCGC A GAGG  | CAC<br>S<br>AGT<br>S<br>SAT<br>D<br>SAA<br>E<br>SAA<br>E                                    | GCT A AAT ITC F ITG L GAA E GTA  | GAT D GAG E CCA P TTA L GAA  | GGA<br>GCCA<br>CCCA<br>P.ATG<br>M.GAT<br>D.TTA   | GCA A CTA L AAA K GCC A GTA   | GAA E TTTT F ATTC F ACCT P CACT T ATTA  | AAA<br>K<br>GGA<br>GAA<br>E<br>GTA<br>V<br>CCA<br>P<br>GAT         | GTAG<br>V<br>AGTA<br>S<br>CAAA<br>Q<br>CCA'<br>P<br>GAGG<br>GAAG                       | CAT( H ATT' I ATT( I ITA( L GAT( D GAG(   | GTT(<br>V<br>TTG(<br>L<br>GTG(<br>V<br>CCA(<br>P<br>GAC'<br>D   | CCT P GAT CGCG A GTG F ACT   | GCT AAA K GGT GCA ACCA GCA GCA GCA  | CAA<br>Q<br>GAT<br>D<br>ACT<br>T<br>GAA<br>TTA<br>L  | GAA E ATA I GCT A GAG E GAT D GAA  | N ATTT I AAAC K CCCG P GTTA V TCAA  | 900<br>960<br>1020<br>1080   |
| D<br>TA<br>V<br>TT<br>F<br>AT<br>H<br>CG<br>A<br>CA                        | T<br>CAA<br>Q<br>GAT<br>D<br>GTT.<br>V<br>CAA<br>Q<br>GAA<br>E       | E<br>CCT<br>P<br>CAT<br>H<br>ACG<br>T<br>GTA<br>V<br>TCT                                   | GATA D GCCC A ATTA I GGAC G CCAC P CCCC  | AGTT<br>S<br>SATA<br>D<br>AAAC<br>K<br>CAAC<br>Q<br>GCGC<br>A<br>GAGC<br>E   | CAC<br>S<br>AGT<br>S<br>SAT<br>D<br>SAA<br>E<br>SAA<br>E                                    | GCT A AAT N TTC F TTG L GAA E GTA V  | GAT D GAG E CCA P TTA L GAA E  | GGA<br>GCCA<br>CCA<br>P.<br>ATG<br>M.GAT<br>D.   | GCA  CTO  L  CTA  L  AAA  K  GCO  A  CTA  | GAA<br>E<br>TTT<br>F<br>ATTC<br>F<br>ACT<br>P<br>ACT<br>T<br>ATTA   | AAA<br>K<br>GGA<br>GAA<br>E<br>GTA<br>V<br>CCA<br>P<br>GAT         | GTAG<br>V<br>AGTAG<br>S<br>CAAG<br>CCAG<br>P<br>GAAG<br>E<br>GAAG                      | CAT( H ATT' I ATTC I CTAC GATC GAGG   | GTTO V TTGO L GTGO V CCAO P GAC D GCAO A  | CCT P GAT GCG A GTG F ACT  | GCT AAA K GGT GCA ACA GCA GCA A   | CAA<br>Q<br>GAT<br>D<br>ACT<br>T<br>GAA<br>E<br>TTA<br>L<br>GAA<br>E                             | GAA<br>E<br>ATA<br>I<br>GCT<br>A<br>GAG<br>E<br>GAT<br>D<br>GAA<br>E         | N ATTT I AAAC K CCCG P GTTA V TCAA  | 900<br>960<br>1020<br>1080<br>1140   |
| D<br>TA<br>V<br>TT<br>F<br>AT<br>H<br>CG<br>A<br>CA<br>T                   | T<br>CAA<br>Q<br>GAT<br>V<br>CAA<br>Q<br>GAA<br>E<br>GAA             | E<br>CCT<br>P<br>CAT<br>H<br>ACG<br>T<br>GTA<br>V<br>TCT<br>S<br>GTG                       | GATA D GCCC A ATTA I GGAC G CCAC P CCCCC P   | AGTT<br>S<br>SATA<br>D<br>AAAC<br>K<br>CAAC<br>Q<br>GCGC<br>A<br>GAGC<br>E   | CAC<br>SAGTA<br>SATA<br>D<br>SAAA<br>E<br>SAAC<br>E<br>SAAC<br>E                            | GCT A AAT N TTC F GAA GTA GAA GAA  | GAT D GAG E CCA TTA L GAA E GAA  | GGA<br>GCCA<br>ACCA<br>P.<br>ATG<br>M.GAT<br>D.<br>TTA<br>L.GGA  | GCA  CTO  L  CTA  K  GCO  A  GTA  V  CCA  | GAA E TTT  F CCT P ACT ATTA L ACC   | AAA<br>K<br>GGA<br>GAA<br>E<br>GTA<br>V<br>CCA<br>P<br>GAT<br>GAA  | GTAG<br>V<br>AGTAG<br>CAAG<br>CCAG<br>P<br>GAAG<br>E<br>GAAG                           | CATO H ATTO I TTAO GAGO E TTAO  | GTT( V TTG( V CCA( P GAC' D GCA( A GAT( GAT(  | CCT P GAT GCG A GTG F ACT GCC  | GCT A AAA K GGT GCA ACA GCA AAA AAA   | CAA<br>Q<br>GAT<br>D<br>ACT<br>T<br>GAA<br>E<br>CGAA<br>E  | GAA<br>E<br>ATA<br>I<br>GCT<br>A<br>GAG<br>E<br>GAT<br>D<br>GAA<br>E         | N ATTT I AAAC K CCCG P GTTA V TCAA S GATG                                     | 900<br>960<br>1020<br>1080<br>1140   |
| D<br>TA<br>V<br>TT<br>F<br>AT<br>CG<br>A<br>CA<br>T<br>CG                  | T<br>CAA<br>Q<br>GAT<br>D<br>GTT<br>V<br>CAA<br>Q<br>GAA<br>E<br>GAA | E<br>CCT<br>P<br>CAT<br>H<br>ACG<br>T<br>GTA<br>V<br>TCT<br>S<br>GTG<br>V                  | GATA D GCCC A ATTA I GGAC CCAC P CCCC P GGAC   | AGTT<br>S<br>SATA<br>D<br>AAAC<br>K<br>CAAC<br>Q<br>SCGC<br>A<br>SAGC<br>E<br>CCAA   | CAC<br>S<br>AGTA<br>S<br>SAT'<br>D<br>SAA'<br>E<br>SAAC<br>E<br>ACGC<br>T                   | GCT<br>AAT<br>NTC<br>FTG<br>L<br>GAA<br>ETA<br>VGAA  | GAT D GAG E CCA TTA L GAA E GAA  | GGA<br>GCCA<br>CCCA<br>P.ATG<br>M.GAT<br>D.TTA<br>L.GGA<br>G   | GCA<br>CTC<br>L<br>CTA<br>K<br>GCC<br>A<br>GTA<br>CCA                                     | GAA ETTT F ATTC P ACT T ATTA L ACC  | AAA<br>K<br>GGA<br>GAA<br>E<br>GTA<br>CCA<br>P<br>GAT<br>GAA<br>E  | GTAG<br>V<br>AGT<br>S<br>CAA<br>Q<br>CCA'<br>P<br>GAGG<br>E<br>GAAG<br>E<br>GAAG       | CAT( H ATT( I TTA( GAT( C GAG( E TTA( L C C C C C C C C C C C C C C C C C C   | GTT( V TTG( L GTG( V CCA( P GAC' D GCA A GAT( D   | CCT P GAT GCG A GTG F ACT GCC A  | GCT A AAA K GGT GCA ACA GAA T   | CAA<br>Q<br>GAT<br>D<br>ACT<br>T<br>GAA<br>TTA<br>L<br>GAA<br>E<br>CCA                           | GAA<br>E<br>ATA<br>I<br>GCT<br>A<br>GAG<br>E<br>GAT<br>D<br>GAA<br>E<br>GAG  | N ATTT I AAAC K CCCG P GTTA V TCAA S GATG D                                   | 900<br>960<br>1020<br>1080<br>1140<br>1200                                 |
| D<br>TA<br>V<br>TT<br>F<br>AT<br>CA<br>CA<br>T<br>CG<br>T<br>GA            | T<br>CAA<br>Q<br>GAT<br>V<br>CAA<br>Q<br>GAA<br>E<br>GAA<br>TTT      | E<br>CCT<br>P<br>CAT.<br>H<br>ACG<br>T<br>GTA<br>V<br>TCT<br>S<br>GTG<br>V<br>CGC.         | GATA D GCCC A ATTA GGAC CCAC P CCCC P GGAC G ATTA  | AGTT<br>SATA<br>DAAG<br>K<br>CAAG<br>Q<br>GCGG<br>A<br>GAGG<br>E<br>CCAA   | CAC<br>SAGTA<br>SAGTA<br>D<br>SAAC<br>EAAC<br>EAAC<br>EAAC<br>T<br>CGAAC                    | GCT<br>AAT<br>ITC<br>ITG<br>GAA<br>GTA<br>GAA  | GAT D GAG E CCA TTA L GAA E GAA TGC  | GGA<br>GCCA<br>CCCA<br>PATG<br>ATG<br>CATTA<br>LGGA<br>CAGA  | GCA<br>CTC<br>L<br>CTA<br>K<br>GCC<br>A<br>GTA<br>CCA<br>P                                | GAA ETTT F ATTC P ACT ACT ACT ACC T | AAA<br>K<br>GGA<br>GAA<br>CCA<br>CCA<br>GAT<br>GAA<br>AAC          | GTAG<br>V<br>AGT<br>S<br>CAA<br>Q<br>CCA'<br>P<br>GAAG<br>E<br>GAAG<br>E<br>GAAG       | CATO H ATTO I TTAO GATO GAGO I TTAO AGA   | GTT(<br>V<br>TTG(<br>L<br>GTG(<br>V<br>CCA(<br>P<br>GAC'<br>D<br>GAT(<br>D  | CCT P GAT GCG A T GCC A GTA  | GCT AAA K GGT GCA GCA GCA T GAA GAG   | CAA<br>Q<br>GAT<br>TACT<br>GAA<br>TTA<br>LGAA<br>ECCA<br>P                                       | GAA<br>EATA<br>IGCT<br>GAG<br>GAT<br>GAA<br>GAA<br>GAA                       | N ATTT I AAAC K CCCG P GTTA V TCAA S GATG D GAAA                              | 900<br>960<br>1020<br>1080<br>1140<br>1200                                 |
| D<br>TA<br>V<br>TT<br>F<br>AT<br>CA<br>CA<br>CT<br>GA<br>G                 | T<br>CAA<br>Q<br>GAT<br>V<br>CAA<br>Q<br>GAA<br>E<br>GAA<br>TTT      | E<br>CCT<br>P<br>CAT.<br>H<br>ACG<br>T<br>GTA<br>V<br>CTC<br>CGC.                          | GATA D GCCC A ATTA I GGAC CCAC P CCCC P GGAC G ATTA  | SATA D AAAO K CAAO Q GCGO A GAGO E CCAA P AGAO R   | CAC<br>SAGTA<br>SATT<br>D<br>SAAT<br>EAAC<br>EAAC<br>EAAC<br>T<br>CGAA                      | GCT AAT NTC TTG GAA GAA GAA AAC AAC  | GAT DGAT GAG E CCA TTA GAA E GAA TGC C                                     | GGA<br>GCCA<br>CCCA<br>PATG<br>ATG<br>ATTA<br>CGA<br>CGA<br>RAGA   | GCA CTC L CTA K GCC A GTA CCA P AGG R   | GAA ETTT F ATTC ACT ACT ACC T ACC ACC ACC ACC ACC   | AAA<br>K<br>GGA<br>GAA<br>CCA<br>CCA<br>D<br>GAA<br>AAC<br>N       | GTAG<br>V<br>AGT<br>S<br>CAA<br>Q<br>CCA'<br>P<br>GAAG<br>E<br>GAAG<br>E<br>AGAA       | CATO H ATTO I TTAO GATO GAGO I TAO R AGA R  | GTT(<br>V<br>TTG(<br>V<br>CCA(<br>P<br>GAC'<br>D<br>GCA<br>GAT(<br>D<br>AAC(<br>N   | CCT P GAT D GCG A GTG V F ACT T C GCC A T T C C T T C C T T T T T T T T T T  | GCT<br>AAA<br>K<br>GGT<br>GCA<br>GCA<br>GAA<br>E<br>ACT<br>GAG                          | CAA<br>Q<br>GAT<br>TACT<br>GAA<br>LGAA<br>ECCA<br>PCCA<br>GGA<br>GGA                             | GAA<br>E<br>ATA<br>I<br>GCT<br>A<br>GAG<br>GAA<br>GAA<br>E<br>GAA<br>E       | N ATTT I AAAC K CCCG P GTTA V TCAA S GATG D GAAA E                            | 900<br>960<br>1020<br>1080<br>1140<br>1200                                 |
| D<br>TA<br>V<br>TT<br>F<br>AT<br>CA<br>CA<br>CT<br>GA<br>G                 | T<br>CAA<br>Q<br>GAT<br>V<br>CAA<br>Q<br>GAA<br>E<br>GAA<br>TTT      | E<br>CCT<br>P<br>CAT.<br>H<br>ACG<br>T<br>GTA<br>V<br>CTC<br>CGC.                          | GATA D GCCC A ATTA I GGAC CCAC P CCCC P GGAC G ATTA  | SATA D AAAO K CAAO Q GCGO A GAGO E CCAA P AGAO R   | CAC<br>SAGTA<br>SATT<br>D<br>SAAT<br>EAAC<br>EAAC<br>EAAC<br>T<br>CGAA                      | GCT AAT NTC TTG GAA GAA GAA AAC AAC  | GAT DGAT GAG E CCA TTA GAA E GAA TGC C                                     | GGA<br>GCCA<br>CCCA<br>PATG<br>ATG<br>ATTA<br>CGA<br>CGA<br>RAGA   | GCA CTC L CTA K GCC A GTA CCA P AGG R   | GAA ETTT F ATTC ACT ACT ACC T ACC ACC ACC ACC ACC   | AAA<br>K<br>GGA<br>GAA<br>CCA<br>CCA<br>D<br>GAA<br>AAC<br>N       | GTAG<br>V<br>AGT<br>S<br>CAA<br>Q<br>CCA'<br>P<br>GAAG<br>E<br>GAAG<br>E<br>AGAA       | CATO H ATTO I TTAO GATO GAGO I TAO R AGA R  | GTT(<br>V<br>TTG(<br>V<br>CCA(<br>P<br>GAC'<br>D<br>GCA<br>GAT(<br>D<br>AAC(<br>N   | CCT P GAT D GCG A GTG V F ACT T C GCC A T T C C T T C C T T T T T T T T T T  | GCT<br>AAA<br>K<br>GGT<br>GCA<br>GCA<br>GAA<br>E<br>ACT<br>GAG                          | CAA<br>Q<br>GAT<br>TACT<br>GAA<br>LGAA<br>ECCA<br>PCCA<br>GGA<br>GGA                             | GAA<br>E<br>ATA<br>I<br>GCT<br>A<br>GAG<br>GAA<br>GAA<br>E<br>GAA<br>E       | N ATTT I AAAC K CCCG P GTTA V TCAA S GATG D GAAA E                            | 900<br>960<br>1020<br>1080<br>1140<br>1200                                 |
| D TA V TT F AT H CA A CA T GG G CA   | T<br>CAA<br>Q<br>GAT<br>V<br>CAA<br>Q<br>GAA<br>E<br>GAA<br>F<br>GAA | E<br>CCT<br>P<br>CAT<br>H<br>ACG<br>T<br>GTA<br>V<br>CGC<br>R<br>GAA                       | GATA D GCCC A ATTA I GGAC CCCC P CCCCC P GGAC G ATTA   | AGTT<br>SATA<br>DAAG<br>K<br>CAAG<br>CAAG<br>CAAG<br>ECAA<br>P<br>AGAG<br>R<br>GCAG  | CAC<br>SAGTA<br>SATT<br>D<br>SAAT<br>EAAC<br>EAAC<br>T<br>CGAA<br>R                         | GCT<br>AAT<br>TTC<br>TTG<br>GAA<br>GAA<br>GAA<br>AAC<br>GGA                                | GAT DGAT GAG CCA TTA GAA GAA TGC GAA                                       | GGA<br>GCCA<br>CCCA<br>ATG<br>ATG<br>ATTA<br>CGA<br>CAGA<br>RAGA   | GCA<br>ACTO<br>LCTA<br>KGCO<br>ACCA<br>GTA<br>CCA<br>PAGG<br>R                            | GAA E TTT F CCT P ACT ATTA L ACC T AGA R GAA  | AAA<br>K<br>GGA<br>GAA<br>CCA<br>CAT<br>CAAC<br>AAC<br>AAC         | GTAG<br>V<br>AGTA<br>S<br>CAAA<br>Q<br>CCA'<br>P<br>GAAG<br>E<br>GAAG<br>E<br>AGAA     | CATO H ATTO I ATTO L GATO GAGO I TAO R CCAO   | GTTG<br>V<br>GTGG<br>V<br>CCAG<br>P<br>GACG<br>A<br>GATG<br>AACG<br>N   | CCT P GAT D GCG A GTG V T T GCC A GTA V GGA V GGA  | GCT AAA K GGT GCA GCA GAA GAA GAG GAA GAA   | CAA<br>Q<br>GAT<br>TACT<br>GAA<br>LGAA<br>CCA<br>PCCA<br>GGA                                     | GAA<br>EATA<br>GCT<br>GAG<br>GAA<br>GAA<br>GAA<br>GAA<br>GAA<br>GAA          | N ATTT I AAAC K CCCG P GTTA V TCAA S GATG D GAAA E TTAG                       | 900<br>960<br>1020<br>1080<br>1140<br>1200                                 |
| D TAV TT FAT H CG A CA T GG CA T   | T CAA Q GAT V CAA Q GAA E GAA E GAA E GAA E                          | E<br>CCT<br>P<br>CAT<br>H<br>ACG<br>T<br>GTA<br>V<br>CGC<br>R<br>GAA<br>E                  | GATA D GCCC A ATTA I GGAC CCCC P CCCCC P GGAC ATTA I GCTC A  | AGTT<br>SATA<br>DAAG<br>K<br>CAAG<br>CCAA<br>GAG<br>ECAA<br>P<br>AGAG<br>R<br>CCAA<br>R  | CAC<br>SATT<br>D<br>SAAT<br>EAAC<br>EAAC<br>EAAC<br>T<br>CGAL<br>R<br>SAAC<br>E             | GCT<br>AAT<br>NTC<br>FTG<br>GAA<br>EGAA<br>AAC<br>GGA<br>AAC<br>GGA                        | GAT<br>GAG<br>GAG<br>CCA<br>TTA<br>GAA<br>TGC<br>GAA<br>E                  | GGA<br>GCCA<br>CCCA<br>P.ATG<br>ATG<br>M.GAT<br>L.GGA<br>CAGA<br>RAGA<br>V   | GCA<br>ACTO<br>LCTA<br>KGCO<br>AGTA<br>VCCA<br>PAGG<br>R<br>TCA                           | GAA<br>E<br>TTT<br>F<br>ACT<br>P<br>ACT<br>ACT<br>L<br>ACC<br>T<br>AGA<br>R<br>GAA<br>E   | AAA<br>K<br>GGA<br>GAA<br>CCA<br>GAA<br>GAA<br>GAA<br>E            | GTAG V AGT S CAA Q CCA P GAG E GAA GAA T   | CATC<br>H<br>ATTC<br>ITAC<br>ITAC<br>GATC<br>GAGC<br>E<br>ITAC<br>AGAL<br>R<br>CCAC   | GTTG<br>V<br>GTGG<br>V<br>CCAG<br>P<br>GACG<br>GATG<br>AACG<br>AACG<br>E  | CCT PGAT DGCGAGTTCCACT ACT GCCACT GCC | GCT<br>AAA<br>K<br>GGT<br>GCA<br>GCA<br>GAA<br>E<br>ACT<br>GAG<br>GAA                   | CAA<br>Q<br>GAT<br>D<br>CACT<br>GAA<br>E<br>CCA<br>P<br>GGA<br>GAA<br>E                          | GAA<br>EATA<br>I GCT<br>GAG<br>EAA<br>GAA<br>EAA<br>GAA<br>EAA<br>GAA        | N ATTT I AAAC K CCCG P GTTA V TCAA S GATG D GAAA E TTAG L                     | 900<br>960<br>1020<br>1080<br>1140<br>1200<br>1260                         |
| TAV TT FAT H CG A CA T GG CA T AG  | T CAA Q GAT V CAA GAA GAA GAA GAA GAA GAA GAA GAA GAA                | E<br>CCT<br>P<br>CAT<br>H<br>ACG<br>T<br>TCT<br>S<br>GTG<br>CGC.<br>R<br>GAA<br>ACT        | GATA GCCC GGAC GGAC GGAC GGAC GGAC ATTA I GCCC A CCCC CCC CC | AGTT<br>SATA<br>DAAG<br>K<br>CAAG<br>CAAG<br>ECAA<br>P<br>AGAG<br>R<br>GCAG<br>A<br>GCAG<br>A  | CAC<br>SATT<br>DEAA<br>EAAC<br>EAAC<br>EAAC<br>TCGAC<br>REAAC<br>EAAC<br>EAAC<br>EAAC       | GCT<br>AAT<br>NTC<br>FTG<br>GAA<br>GTA<br>SAA<br>GGA<br>GGA<br>GGAT                        | GAT GAG GAG CCA TTA GAA GAA TGC GAA TTC                                    | GGA<br>GCCA<br>CCCA<br>ATG<br>ATG<br>AGA<br>CAGA<br>R<br>GTA<br>CCA  | GCA CTC L CTA K GCC A GTA CCA P AGG R TCA TTA   | GAA E TTT F CCT P ACT L ACC T ACA R AGAA E GAA  | AAA<br>KGA<br>GGA<br>GAA<br>CCA<br>GAA<br>GAA<br>GAA<br>GGAA       | GTAG V AGT S CAA Q CCA P GAG E GAA E AGA T ACT ACT                                     | CATC H ATTC ITAC GAGC E TAC CAGA R CCAC   | GTTGG L GTGG V CCAG GACG GATG AACG AACG AACG AACG AACG  | CCT PAT GCG ACT FCC ACT GCA GGA GGA GGA GGA GGA GGA GGA GGA GGA  | GCT AAA K GGT GCA GCA GAA GAA GAA GAA GAA GAA   | CAA<br>QAT<br>D'ACT<br>GAA<br>EACCA<br>PGGA<br>GGAA<br>GAA<br>ACC                                | GAA<br>EATA<br>I GCT<br>GAG<br>GAA<br>GAA<br>GAA<br>GAA<br>GAA               | N ATTT I AAAC K CCCG P GTTA V TCAA S GATG D GAAA E TTAG L GAAA                | 900<br>960<br>1020<br>1080<br>1140<br>1200<br>1260                         |
| TAVTTFATHCGACATGGATAG  | T CAA Q GAT CAA CAA GAA GAA GAA GAA GAA GAA GAA GAA                  | E CCT P CAT ACG T S GTA CGC R GAA CA ACT T   | GATA GCCC GGAC GGAC GGAC GGAC GGAC ATTA I GCCAC P  | AGTT<br>SATA<br>DAAG<br>K<br>CAAG<br>CCAA<br>GCAG<br>R<br>GCAG<br>R<br>GCAG<br>BCAG<br>BCAG<br>BCAG<br>BCAG<br>BCAG<br>BCAG<br>BCAG  | CAC<br>SAT'<br>SAT'<br>D SAA'<br>EAAC<br>EAAC<br>T CGAC<br>R SAAC<br>EATC<br>D              | GCT<br>AAT<br>NTC<br>FTG<br>GAA<br>GTA<br>GAA<br>AAC<br>GGA<br>GAT<br>D                    | GAT<br>GAT<br>GAG<br>ECA<br>TTA<br>GAA<br>GAA<br>TTC<br>GAA                | GGA<br>GCCA<br>CCCA<br>ATG<br>ATG<br>AGA<br>CAGA<br>CTA<br>CCA<br>AGA<br>AGA<br>AGA<br>AGA<br>AGA<br>AGA<br>AGA<br>AGA<br>AG | GCA CTC L CTA K GCC A GTA CCA P AGG R TCA TCA TTA   | GAA<br>E<br>TTT<br>F<br>CCT<br>F<br>CCT<br>T<br>ACT<br>LACC<br>T<br>AGA<br>R<br>GAA<br>E<br>GAT<br>D  | AAA<br>GGA<br>GAA<br>GTA<br>CCA<br>GAA<br>GAA<br>GAA<br>GGA<br>GGA | GTAC V AGT S CAA Q CCA P GAG E GAA GAA T ACT T   | CATO H ATTO I ATTO I GATO GAGO E TAO AGA R CCAO ACA T   | GTTG<br>V<br>TTGG<br>STGG<br>V<br>CCAG<br>GACG<br>GATG<br>AACG<br>N<br>GAAGG<br>E<br>ITAG<br>L  | CCT<br>GAT<br>GCG<br>ACT<br>FCC<br>ACT<br>GCA<br>GGA<br>GAA<br>EAA   | GCT<br>AAA<br>KGGT<br>GCA<br>GCA<br>GAA<br>GAA<br>GAA<br>GAA<br>GAA                     | CAA<br>QAT<br>DACT<br>TAGAA<br>EACCA<br>PAGGA<br>GAA<br>EGAA<br>ACC                              | GAA<br>EATA<br>I GCT<br>GAG<br>EAG<br>GAA<br>GAA<br>GAA<br>GAA<br>GAA<br>GAA | N ATTT I AAAC K CCCG P GTTA V TCAA S GATG D GAAA E TTAG L GAAA E              | 900<br>960<br>1020<br>1080<br>1140<br>1200<br>1320<br>1380                 |
| TAV TT FAT CA CA CT GG CA T GG CA CT   | T CAA Q GAT CAA CAA GAA GAA GAA GAA GAA GAA GAA GAA                  | E CCT P CAT ACG T S GTA CGC R GAA CGAA GAA   | GATA GCCC GGAC GGAC GCAC GCAC GCAC GCAC  | AGTTO SATA DAG AGO AGO AGO AGO AGO AGO AGO AGO AGO A   | CAC<br>SAT'<br>SAT'<br>SAA'<br>EAA'<br>EAAC<br>CGA'<br>CGA'<br>EAAC<br>EAAC<br>EAAC<br>SAAC | GCT<br>AAT<br>NTC<br>FTG<br>GAA<br>GTA<br>GGA<br>GGA<br>GAT<br>ACC                         | GAT GAT GAG GAG CCA TTA GAA GAA TTC GAA TTC GTA                            | GGA<br>GCCA<br>CCA<br>CCA<br>M<br>GAT<br>GATA<br>GGA<br>CAGA<br>GCA<br>GCA<br>GAGA   | GCA CTC L CTA L AAA K GCC GTA CCA GTA TCA TCA TCA GGGA                                    | GAA E TTT F CCT F CCT TA TA LACC TA GAA E GAA GAA GAA   | AAA<br>GGA<br>GAA<br>GTA<br>CCA<br>GAA<br>GAA<br>GAA<br>GGAA       | GTAC V AGT S CAA Q CCA P GAG E GAA GAA T ACT ACC                                       | CATO H ATTO I ATTO I GATO GAGO F CAGO T ACA T GTAO  | GTTG<br>V<br>TTGG<br>V<br>GCAG<br>GACG<br>GATG<br>GAAGG<br>AACG<br>AACG<br>TTAG<br>GAAGG  | CCT GAT DGG AG GT F GCA ACT ACT GCA ACT GCA ACT GCA ACT ACT GCA ACT ACT GCA ACT ACT ACT ACT ACT ACT ACT ACT ACT A  | GCT AAA KGGT GCA GCA GAA GAA GAA GAA GAA GAA GAA  | CAA<br>QAT<br>ACT<br>GAA<br>CCA<br>CCA<br>CCA<br>CCA<br>CCA<br>CAA<br>CCA<br>CAA<br>CCA<br>CAA   | GAA EATA GCT GAG GAA GAA GAA GAA GAA GAA GAA GAA GA                          | N ATTT I AAAC K CCCG P GTTA V TCAA S GATG D GAAA E TTAG L GAAA E GTAG         | 900<br>960<br>1020<br>1080<br>1140<br>1200<br>1320<br>1380                 |
| D TA V TT F AT H CA A CT G G CA T G CT A CT T A CT T A CT T A CT T T T T T | T CAA Q GAT CAA CAA GAA GAA GAA GAA GAA GAA GAA A GCA A              | E<br>CCT<br>P<br>CAT<br>ACG<br>T<br>GTA<br>CGC<br>R<br>GAA<br>CGAA<br>E<br>ACT<br>GAA<br>E | GATA D GCCC A ATTA GGAC CCAC P CCCC P GGAC ATTA I GCTC A CCAC P GGAC G A CCAC  | SATA DAAG CAAG CCAAG CCA | CAC<br>SATT<br>SAAT<br>SAAC<br>SAAC<br>SAAC<br>SAAC<br>SAAC<br>S                            | GCT<br>AAT<br>ITF<br>GAA<br>EGV<br>GAA<br>AGG<br>GAT<br>ACC<br>T                           | GAT DAG GAG CCA TTA GAA TGC GAA TTC GTA                                    | GGA<br>GCCA<br>CCCA<br>ATG<br>ATTA<br>GGA<br>CAGA<br>GTA<br>GCA<br>GAG<br>GAG<br>GAG   | GCA<br>A CTC<br>L CTA<br>K GCC<br>A GTA<br>CCA<br>R TCA<br>TCA<br>TCA<br>GGA<br>GGA       | GAA ETTT F ATTC ACT ACT ACT ACA ACA ACA ACA ACA AC  | AAA<br>K<br>GGA<br>GAA<br>CCA<br>GAA<br>GAA<br>GAA<br>GAA<br>GAA   | GTAG V AGTA S CAAA CCA GAAG E GAAG E AGAA ACTA ACCA T                                  | CATO H ATTO I TTAO GATO GATO GATO CCAO R CCAO T CTAO V  | GTTG<br>V<br>GTGG<br>V<br>CCAG<br>GACG<br>GATG<br>D<br>GAAGG<br>E<br>TTAG<br>EAGG<br>E  | CCT PAT D GCA GTA TCC ACT FACT GCA GTA GGA GGA E GGA E GGA E GGA GGA GGA GGA   | GCT AAA KGGT GCA GCA GAA GAA GAA GAA GAA GAA GAA GAA                                    | CAA<br>Q GAT<br>D TACT<br>GAA<br>TTA<br>GAA<br>CCA<br>EGAA<br>GAA<br>GAA<br>ECC<br>GAA           | GAA EATA GCT GAG GAA GAA GAA GAA GAA GAA GAA T                               | N ATTT I AAAC K CCCG P GTTA V TCAA S GATG D GAAA E TTAG L GAAA E GTAG V       | 900<br>960<br>1020<br>1080<br>1140<br>1200<br>1320<br>1380<br>1440         |
| D TA VTT F AT H CA CA T GG CA T GG CT T AG                                 | T CAA Q GAT CAA Q GAA GAA GAA GAA GCA GCA GGAA                       | E CCT P CAT ACG T CTA CCC CCC CCC CCC CCC CCC CCC CCC C                                    | GATA D GCCC ATTA GGAC CCAC P CCCC P GGAC ATTA I GCTC A CCAC P GGAC GCAC GCAC GCAC GCAC GCAC  | SATA SATA CAAC CAAC CCAAC CCACC CCAC | CAC<br>SATTO<br>SAATO<br>SAAC<br>SAAC<br>SAAC<br>SAAC<br>SAAC<br>SAAC<br>SAAC<br>SAA        | GCT<br>AAT<br>TTF GAA<br>GAA<br>GAA<br>GAA<br>ACC<br>GAA<br>GAA<br>GAA<br>GAA<br>GAA       | GAT DAG EAA CAA TTF A GAA GAA GAA GAA GAA GAA GAA GAA GAA                  | GGA<br>GCCA<br>CCCA<br>ATG<br>ATTA<br>GGA<br>CAGA<br>GCA<br>GAG<br>GAG<br>GAA  | GCA<br>A CTC<br>L CTA<br>K GCC<br>A CCA<br>GTA<br>CCA<br>TCA<br>TCA<br>GGA<br>GGA         | GAA ETTT F CCT ACT ACT ACC ACA ACA ACA ACA ACA ACA  | AAA<br>K<br>GGA<br>GAA<br>CCA<br>GAA<br>GAA<br>GAA<br>GAA<br>TTA   | GTAG V AGTA S CAAA Q CCA P GAGG E GAAG E AGAA T ACCG T GAGG                            | CATO H ATTO I TTAO GATO GATO GATO CATO AGA T CCAO T CTAO CCAO T CCAO CCAO CCAO CC   | GTTG<br>V<br>GTGG<br>V<br>CCAG<br>GACG<br>GACG<br>AACG<br>AACG<br>AACG<br>EAAGG<br>EAAGG<br>EAAGG<br>EAAGG  | CCT PAT GCA  | GCT AAA KGGT GCA                                    | CAA<br>Q GAT<br>GAA<br>GAA<br>CCA<br>GGA<br>GGA<br>GAA<br>GAA<br>GAA                             | GAA EATA GCT GAG GAA GAA GAA GAA GAA GAA GAA GAA GA                          | N ATTT I AAAC K CCCG P GTTA V TCAA S GATG D GAAA E GTAG CTAG CTAG CTAG V TTCC | 900<br>960<br>1020<br>1080<br>1140<br>1200<br>1320<br>1380<br>1440         |
| D TAV TT FATH CA CAT GG CAT AGE CT AGE                                     | T CAA GAT CAA CAA CAA GAA GAA GCA GCA GGA GGA GGA                    | E CCT P CAT ACG T S G C C R ACT GAA C GAA C GAA C GAA C C GAA C C C C C                    | GATA D GCCC ATTA GGAC CCCC P GGAC GTA I GCTC ATTA GCTC GGAC GCAC GCAC GCAC GCAC  | SATA SATA CAAC CAAC CAAC CAAC CAAC CAAC  | CAC<br>SATT<br>SAAT<br>SAAC<br>SAAC<br>SAAC<br>SAAC<br>SAAC<br>S                            | GCT<br>AAT<br>TT GAA<br>GAA<br>GAA<br>AAC<br>GAT<br>ACC<br>GAA<br>ACC<br>GAA<br>ACC<br>GAA | GAT DAT GAG GAG CCA TTA GAA TGCAA TTFA GGA GGA GGA GGA GGA GGA GGA GGA GGA | GGA<br>GCCA<br>CCA<br>ATG<br>ATTA<br>GGA<br>CAGA<br>GCA<br>GAG<br>GAA<br>GAA<br>GAA  | GCA<br>ACTO<br>L<br>CTA<br>K<br>GCA<br>ACA<br>GCA<br>ACA<br>TCA<br>TTA<br>GGA<br>GAA<br>E | GAA ETTT F CTTC CCT ACT ACC AGAA GAA GAA GAA GAA GAA GAA GAA GA   | AAA<br>GGA<br>GAA<br>CCA<br>CCA<br>GAA<br>GAA<br>GAA               | GTAG V AGTA S CAAA Q CCA' P GAGG E GAA' T ACTA T GAGG T GAGG T GAGG T                  | CATO<br>HATTO<br>ITAO<br>ITAO<br>GATO<br>GAGE<br>ITAO<br>AGAI<br>AGAI<br>TAO<br>V<br>GCAI<br>AGAI<br>AGAI<br>AGAI<br>AGAI<br>AGAI<br>AGAI<br>AGAI   | GTTG<br>V<br>GTGG<br>V<br>CCAG<br>GACG<br>GATG<br>BAACG<br>BAACG<br>FTAG<br>GAGG<br>FTAG<br>GAGG<br>T   | CCT<br>GAT<br>GCA<br>GTV TC<br>GCA<br>GTA<br>GGAA<br>EGA<br>GCA<br>CCA   | GCT<br>AAA<br>GGT<br>GCA<br>GCA<br>GCA<br>GCA<br>GCA<br>GAA<br>GAA<br>GAA<br>GAA<br>GAA | CAA<br>Q GAT<br>GAA<br>TACE<br>GAA<br>CCA<br>GGA<br>GGAA<br>ACC<br>GAA<br>GAA<br>GAA<br>GAT<br>D | GAA EATA GCT GAG GAA GAA GAA GAA GAA GAA GAA GAA GA                          | N ATTT I AAAC K CCCG P GTTA TCAA S GATG D GAAA E TTAG L GAAA E GTAG V TTCC F  | 900<br>960<br>1020<br>1080<br>1140<br>1200<br>1320<br>1380<br>1440         |
| D TAVT FATHCA CT GG CATAGE AA  | T CAA GAT CAA CAA CAA GAA GAA GCA GCA TTA                            | E CCT P CAT ACG GTA CGAA GAA GAA GAA GAA GAA GAA GAA GAA G                                 | GATA D GCCC ATTA GGAC CCCC P GGAC GCTC ATTA I GCTC A CCAC GGAC GGAC GGAC GGAC GGAC GG  | SATA DAAG CAAG CAAG CAAG CAAG CAAG CAAG CAA  | CAC<br>SATT<br>SATT<br>DEAA<br>EAAC<br>EAAC<br>CAAC<br>CAAC<br>EAAC<br>EAAC<br>EAAC         | GCT<br>AAT<br>TT GAA<br>GAE CAN<br>GAT<br>ACC<br>GAT<br>ACC<br>GAT<br>ACC<br>GAT<br>ACC    | GAT GAT GAG GAG CCA TTA GAA TTC GAA TTC GAA GAA GAA GAA                    | GGA GCCA CCA ATG ATTA AGA AGA AGA AGA AGA AGA AGA A  | GCA<br>ACTO<br>CTA<br>AAA<br>GCO<br>GTA<br>GCA<br>TCA<br>TTA<br>GGA<br>GAA<br>GAA         | GAA<br>E<br>TTT<br>F<br>CCT<br>ACT<br>ACT<br>ACA<br>ACA<br>ACA<br>ACA<br>ACA<br>ACA<br>ACA  | AAA<br>GGA<br>GAA<br>CCA<br>GAA<br>GAA<br>GAA<br>GAA<br>GAA<br>GAA | GTAG V AGT S CAA CCA P GAG E GAA T ACT ACT ACT GAG E GAG GAG GAG GAG GAG GAG GAG GAG G | CATO H ATTO I TTAO GAGO E AGA R CCAO ACA T GTAO CCAO ACA T GTAO GAGO ACA T GAGO ACA T GAGO ACA GAGO ACA CO | GTTG<br>V<br>GTGG<br>V<br>CCAG<br>GACG<br>GACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAAC<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GAACG<br>GA | CCT PAT CG A GG  | GCT AAA KGGT GCA                                    | CAA<br>QAT<br>QAT<br>GAA<br>CGAA<br>CCA<br>GGA<br>GAA<br>ACC<br>GAA<br>GAA<br>GAA                | GAA EATA GCT GAG GAA GAA GAA GAA GAA GAA GAA GAA GA                          | N ATTT I AAAC K CCCG P GTTA V TCAA S GATG D GAAA E GTAG CTAG CTAG CTAG V TTCC | 900<br>960<br>1020<br>1080<br>1140<br>1200<br>1320<br>1380<br>1440<br>1500 |



JAN (: 8 2003

### FIG. 5B

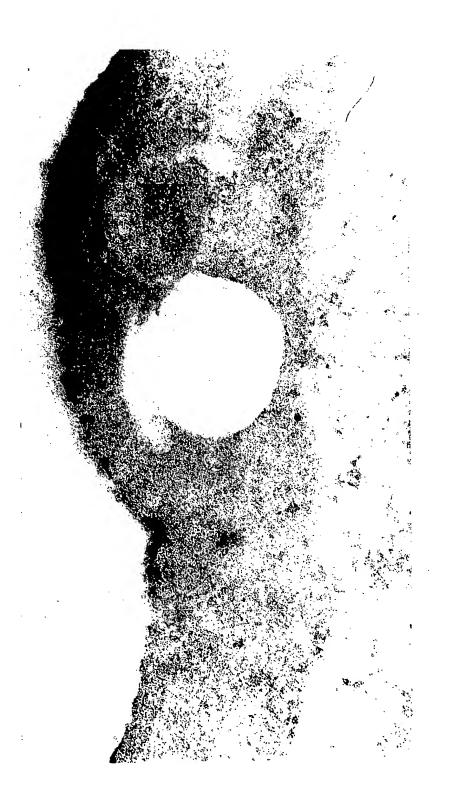
GAGAAGCGTTAGTAGCAGTGCCAGTAGTGGCCGAACCGGTAGAAGTAGTGACTCCTGCTC 1620 G E A L V A V P V V A E P V E V V T P A AGCCTGTCAAACCAATGGTCGCTCCAACGGCAGATGAAACTTTATTCGTTGATATCTTAG 1680 O P V K P M V A P T A D E T L F V D I L ATAACGATTTAACGTATGCAGACATTACATCCTTTGAGCCATTATTTAAACAAATCCTCA 1740 DNDLTYADITSFEPLFKOIL AGGATCCTGATGCAGGAGAGGCTGTAACAGTACCATCAAAGGAAGCACCTGTACAAGTAC 1800 D D P D A G E A V T V P S K E A P V O V CAGTGGCAGTAGGGCCCGCGCAAGAAGTGCCAACGGAAGAATTGATGCAACTCCAAGAGG 1860 PVAVGPAQEVPTEELMQLQE D D F E L E G T A E A P E E G E L V L E EGEPTEEEPREGEPTEGEV CAGAAGAAGAATTAGAGGCAACTCCAGAGGACGATTTCGAATTAGAAGAACCAACAGGAG 2040 EEELEATPEDDFELEEPTG AAGAAGTAGAAGAAACCGTAGAGGGCGAAGAAACTGCAGAAGGAGAAGAAGTGGAAGAGG 2100 EVEETVEGEETAEG<u>EEVEE</u> TACCTGCAGAAGTAGAAGAAGTGGAAGAGGTACCTGCAGAAGTAGAAGAAGTGGAAGAGG 2160 V P A E V <u>E E V E E V P</u> A E V <u>E E V E E</u> TACCAGAAGAAGTAGAAGGTACCCGCAGAAGTAGAAGAAGTGGAAGAGGTACCAGAAG 2220 V P E E V E E V P A E V E E V P E AAGTGGAAGAGGTACCAGAAGAAGTGGAAGAGGTACCAGAAGAAGTGGAAGAGGTACCAG 2280 E V E E V P E E V E E V P E E V P AAGAAGTGGAAGAAGTAGAAGTAGAAGTAGAGGTACCAGCGGTAGTAGAAGTAG 2340 <u>E E V E E V E E V E V P</u> A V V E V AAGTACCAGCGGTAGTAGAAGAAGAGGTGCCAGAAGAAGTAGAAGAAGAAGAAGAAGAAGA EVPAVVEEEVPEEVEEEE AAGAACCAGTAGAGGAAGAAGATGTATTACAATTAGTAATACCATCGGAAGAAGATATAC 2460 E P V E E E D V L Q L V I P S E E D I O L D K P K K D E L G S G I L S I I D M ACTACCAAGACGTTCCAAAGGAATTTATGGAAGAAGAAGAAGAAACTGCAGTGTATCCAT 2580 H Y Q D V P K E F M E E E E E T A V Y P LKPEDFAKEDSOSTEWLTFI AAGGCCTAGAAGGCGACTGGGAACGATTAGAAGTGAGCTTAAATAAGGCTAGAGAAAGAT 2700 Q G L E G D W E R L E V S L N K A R E R W M E O R N K E W A G W L R L I E N K W CAGAATATAGTCAAATTTCAACAAAAGGAAAGGACCCAGCTGGTTTGAGAAAACGAGAGT 2820 S E Y S Q I S T K G K D P A G L R K R E GGAGCGACGAGAAATGGAAAAAATGGTTTAAAGCAGAAGTCAAATCCCAAATTGATTCAC 2880 W S D E K W K K W F K A E V K S O I D S H L K K W M N D T H S N L F K I L V K D



# FIG. 5C

| $\mathbf{Q}$ |     |      |            |              |      |      |      |     |      |              | _   |      |      |       |     |              |     |              |      | F    |
|--------------|-----|------|------------|--------------|------|------|------|-----|------|--------------|-----|------|------|-------|-----|--------------|-----|--------------|------|------|
| u            |     |      |            |              |      |      |      |     |      |              |     |      |      |       |     |              |     |              |      | _    |
| ТG           | TC  | ACA  | ATT.       | rga <i>f</i> | AAC  | AAG  | AAA  | ACC | 'AAA | Ġ <b>A</b> A | TGG | TTA  | ATG  | TAA   | CAC | TGG          | AAA | AAG          | AACG | 3000 |
| M            | S   | Q    | F          | E            | N    | K    | K    | Т   | K    | E            | W   | L    | M    | N     | Н   | W            | K   | K            | N    |      |
| AA           | CG  | GGG' | TTA:       | rggi         | TCT  | 'GAA | TCA  | TTT | GAA  | GTT          | ATG | ACC  | :ACA | ATCA  | AAA | ATT.         | ATT | TAA          | GTGG | 3060 |
| E            | R   | G    | Y          | G            | S    | E    | S    | F   | E    | V            | M   | T    | T    | S     | K   | L            | L   | N            | V    |      |
|              |     |      |            |              |      |      |      |     |      |              |     |      |      |       |     |              |     |              | CTCA | 3120 |
| Α            | K   | S    | R          | E            | W    | Y    | R    | Α   | N    | P            | N   | I    | N    | R     | E   | R            | R   | $\mathbf{E}$ | L    |      |
| ТG           | AAA | ATGO | GTT:       | гстс         | CTA  | AAA  | GAA  | AAC | 'GAA | TAT          | TTA | GGA  | CAA  | AGA   | ATG | GAA          | AAA | ATG          | GACT | 3180 |
| л<br>М       | K   | W    | F          | L            | L    | K    | E    | N   | E    | Y            | L   | G    | Q    | R     | M   | $\mathbf{E}$ | K   | M            | D    |      |
| CA           | TTC | GGA/ | <b>AAA</b> | AAGT         | 'TAA | ATT  | TTT  | TGT | GTT  | CAA          | TTC | 'AAT | 'GTG | TAC   | AAC | ATT          | TTC | TGG          | AAAA | 3240 |
| S            | L   | E    | K          | S            |      |      |      |     |      |              |     |      |      |       |     |              |     |              |      |      |
| CG           | CCI | raa( | CCA        | AGGA         | AĢA  | ATG  | GAA' | TCA | ATT  | TGT          | TAA | TGA  | TAA  | 'AAA' | AGT | TTG          | TAA | TAT          | AGAA | 3300 |
|              |     |      |            |              |      |      |      |     |      |              |     |      |      |       |     |              |     |              |      |      |
| AA           | AAC | GAAC | CAGA       | ATTA         | TTC  | TCT' | TAT. | AAA | ATA  | AAT.         | AAT | TC   |      |       |     |              |     |              |      | 3337 |

FIG. 6A







( B) (LASS SURGLASS )

FIG. 7A

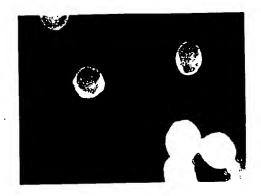


FIG. 7B

